Commonwealth of Kentucky
Division for Air Quality

PERMIT STATEMENT OF BASIS

(FINAL)
Conditional Major, Construction / Operating
Permit: F-07-004
Ticona Polymers, Inc.
Florence, KY 41042
August 6, 2007
Ralph Gosney P.E., Reviewer

SOURCE ID:	21-015-00043
SOURCE A.I. #:	259
ACTIVITY ID:	APE20060001

SOURCE DESCRIPTION:

Ticona Polymers, Inc. compounds plastic resins, which consists of mixing of additives and chemicals with a raw polymer resin to impart different physical and chemical properties. Primary emission units include tote loading stations, Henschel mixers, and extrusion. Insignificant activities primarily consist of material and product handling activities. The Standard Industrial Classification (SIC) Code for this source is 3087, *Custom Compounding of Purchased Plastics Resins*.

The potential to emit (as defined in 401 KAR 52:001, Section 1 (56)) of particulate matter less than ten (10) microns (PM_{10}) is greater than major source thresholds. Additionally, the potential to emit (as defined in 401 KAR 52:001, Section 1 (56)) of hazardous air pollutants (HAPs) is greater than the major source thresholds of 10 and 25 tons per year for any single HAP and the combination of HAPs, respectively. To preclude the applicability of 401 KAR 52:020, *Title V Permits*, the source has requested voluntary federally enforceable permit limits below major source thresholds. Therefore, the source is subject to the provisions of 401 KAR 52:030, *Federally-Enforceable Permits for Nonmajor Sources*.

The source was issued permit S-97-057 (Revision 1) on January 20, 1999 for construction and operation.

The applications detailed below were previously submitted to the Division by the applicant, and have been reviewed and are included in this permit renewal.

DAQ Receipt Date	Description of Request
11/29/2006	Application for construction and modification of current permit (including confidential information)
01/27/2006	Routine replacement of an in-kind dust collector
12/22/2004	Additional information for application received 10/14/2004
10/14/2004	Minor modification of S-97-057R1 to install a new extruder
02/03/2004 and 01/08/2004	Additional information for application received 12/01/03, log no. 56227 and 56228
12/01/03	Minor modification of S-97-057R1 to install a research extruder and 2-4 MMBTU/hr boilers (including confidential information)

Emission Points

001 (P001) **Blending Area Tote Loading Stations - Two (2)**
Description: Dry raw materials (pigments, additives and raw polymer resin) are batch loaded into totes; either directly or as a pre-mixed masterbatch concentrate from EP 002. Totes are weighed whiles being loaded, then transferred to the extruder or the mixing tumbler. Vents to DC01, "SLY" (Inside) Dust Collector.

002 (P002) **Six (6) Henschel Mixers**
Description: Disperses pigments or additives into raw polymer resins to form Masterbatch concentrates. This process involves dry raw material charging to, and batch dumping from, the mixers. One large mixer utilized for Fortron Autobatches with a reduced batch cycle time. Vents to DC01, "SLY" (Inside) Dust Collector.

Mixer Description	Number of Mixers
Small Mixers	3
Large Mixers	2
Large Mixer used for Fortron Autobatches	1

PLASTIC EXTRUSION

03 (P003) **Nine (9) Single Screw Extruders**
Description: Transfer of polymer resins, pigments and additives by upstream feeders from tote tanks into extruders that produce compounded plastics. The nine (9) single screw extruders are collectively considered as EP 003. One extruder vents to DC04, FARR (Outside) Dust Collector #3; five other extruders vent to DC01, "SLY" (Inside) Dust collector.

004a (P004a) **Two Twin Screw Extruders**
Description: Transfer of polymer resins, additives and fiberglass by upstream, downstream and fiberglass feeders (up to two fiberglass feeders used during transfer) into extruders that produce compounded plastics. Vents to DC02, FARR (Outside) Dust Collector #1.
Extruder IDs: MS 1701 and MS 801
Control Device: Ecosorb odor control system, no control efficiency assumed for organic and particulate matter emissions (as of July 25, 2006 test)

004b (P004b) **Two Twin Screw Extruders**
Description: Transfer of polymer resins, additives and fiberglass by upstream, downstream and fiberglass feeders (up to two fiberglass feeders used during transfer) into extruders that produce compounded plastics. Vents to DC03, FARR (Outside) Dust Collector #2.
Extruder IDs: MS1901 and MS 901
Control Device: Ecosorb odor control system, no control efficiency assumed for organic and particulate matter emissions (as of July 25, 2006 test)

004c (P004c) **Two Twin Screw Extruders**
Description: Transfer of polymer resins, additives and fiberglass by upstream, downstream and fiberglass feeders (up to two fiberglass feeders used during transfer) into extruders that produce compounded plastics. Vents to DC04, FARR (Outside) Dust Collector #3.
Extruder IDs: MS 1801 and MS 101
Control Device: Ecosorb odor control system, no control efficiency assumed for organic and particulate matter emissions (as of July 25, 2006 test)

009 (P009) **Four (4) Research and Development (PPT) Extruders**
Description: Manual transfer of polymer resins, additives and fiberglass into R&D twin screw extruders that produce compounded plastics.
Control Device: Ecosorb odor control system, no control efficiency assumed for organic and particulate matter emissions

015 (P015) **Extruder #MS-2001**
Description: 70 mm Mega Twin Extruder extrudes polymer chips with additives that do not contain metallic HAPs. Materials extruded through extruder MS 2001 are not processed in or fed from emission sources in EP 001, 013a, 013b, 013c, 013d, 016, 017 and 018. Vents to DC05, FARR (Outside) Dust Collector #4.
Extruder ID: MS 2001
Control Device: Ecosorb odor control system, no control efficiency assumed for organic and particulate matter emissions

MATERIAL HANDLING

005 (P005) **Product Handling and Packaging**
Description: Plastic strands produced from all extruders are cut, classified, de-dusted as necessary and packaged for shipping. De-dusting operations vent to DC02, FARR (Outside) Dust Collector #1.

016 (P016) **Bulk Bag Transfer to Totes**
Description: Dumping of bulk bags into totes to be sent to the extruders. Vents to DC03, FARR (Outside) Dust Collector #2.

018 (P018) **Tote Transfer to Tote**
Description: Transfer of raw materials from tote to tote

008 (P008) **Supersack Bulk Bag Unloaders for Extruder 801**
Description: Supersacks of polymer feed, fiberglass or additives are discharged to a hopper discharging to the extruder feeders. Vents to dust collector.

012 (P012) **Henschel Mixing Area Pneumatic Transfer System (formerly "Celcon Autobatching System")**

Description: Transfer of chip from totes to the Henschel mixers

COMMENTS:

(1) **Type of control and efficiency**

Tote loading, Henschel mixing, the extruders, bag transfer to totes, supersack unloading, product handling, weigh scales and tote transfer to gaylords are controlled by dust collectors. However, dust collectors are not needed for compliance demonstration with applicable regulations.

(2) **Emission factors and their source**

Emissions from the process equipment were estimated using AP-42, Table 6.6.2-2 and stack testing in July of 1996, witnessed by the Division. Fugitive particulate matter emissions were based on engineering estimates, as provided by the permittee. AP-42, Chapter 1.4 was used to determine emissions from the furnaces and boilers. Refer to the detailed emission calculations in the Pollutants of Concern (POC) tables.

(3) **Applicable Regulations**

(a) 401 KAR 53:010, *Ambient Air Quality Standards*, applies to odors from EP 004a, 004b, 004c, 009 and 015 when extruding Fortron flake. At any time when 1 volume unit of ambient air is mixed with 7 volume units of odorless air, the mixture must have no detectable odor. [401 KAR 53:010, Appendix A]

(b) 401 KAR 59:010, *New Process Operations*, applies to each affected facility not subject to another emission standard for particulate matter (PM) in Chapter 59 of 401 KAR commenced on or after July 2, 1975. This rule applies to EP 001, 002, 003, 004a, 004b, 004c, 009, 015, 005, 016, 018, 008, 012, and the insignificant activities, as listed in Section C of the permit. Visible emissions shall not exceed 20% opacity. Emissions of PM shall not exceed the allowable rates from the stacks, determined as follows:

For process rates up to 60,000 lb/hr: $E = 3.59P^{0.62}$

Where E = rate of emissions in lb/hr, and
P = process weight in tons/hr

(c) 401 KAR 59:015, *New Indirect Heat Exchangers*, applies to the boilers at EP 010 (P010) and EP 011 (P011) because each of these indirect heat exchangers commenced after April 9, 1972 and have a heat input capacity of more than one (1) million Btu per hour (MMBtu/hr). These boilers are listed in the permit as EP 010 and 011 in **Section C, Insignificant Activities**.

(d) 401 KAR 63:020, *Potentially Hazardous Matter or Toxic Substances*, requires that persons responsible for a source from which hazardous matter or toxic substances may be emitted shall provide the utmost care and consideration, in the handling of these materials, to the potentially harmful effects of the emissions resulting from such activities. No owner or operator shall allow any affected facility to emit potentially hazardous matter or toxic substances in such quantities or duration as to be harmful to the health and welfare of humans, animals and plants.

(4) Non-Applicable Regulations:

(a) Ticona has requested voluntary permit emission limits of 90 tons per year (tpy) or less of particulate matter (PM/PM10), 9 tpy or less of a single hazardous air pollutant (HAP), and 22.5 tpy or less of combined HAPs. As such, this source will not be a major source of HAP emissions, and there are no *NESHAPs* (40 CFR 63 and 401 KAR 63) applicable to this area source for HAP emissions, as such is defined at 40 CFR 63.2. Compliance with above emission limits shall also make the requirements of 401 KAR 52:020, *Title V Permits*, not applicable to the source.

(b) 401 KAR 60:005, Section 3(1)(ddd), which incorporates by reference 40 CFR 60, Subpart DDD, *Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry*, does not apply as no polymerization reactions occur at this source.

(c) 40 CFR 64, *Compliance Assurance Monitoring (CAM)*, does not apply to any emission unit because this source is being approved to operate under a Conditional Major permit and, pursuant to 40 CFR 64.2(a), the requirements of this rule are applicable only to a source required to obtain a Title V (Part 70 or 71) permit.

EMISSION AND OPERATING CAPS DESCRIPTION:

Boone County is designated as non-attainment for the 8-hour ozone standard, and is also designated as non-attainment for P $M_{2.5}$. In the absence of site-specific or other qualified data, PM_{10} emissions will presume to serve as a surrogate for $PM_{2.5}$. Boone County is designated as attainment for all other criteria pollutants. The source is not a major source of emissions of VOC or nitrogen oxides (NOx). To preclude the applicability of 401 KAR 52:020, *Title V permits*, total annual source-wide emissions shall not exceed the following specific limitations on a twelve (12) consecutive month basis:

(a) Particulate matter (PM/PM_{10}) emissions: 90 tons per year;
(b) Combined hazardous air pollutant (HAP) emissions: 22.5 tons per year; and
(c) Single hazardous air pollutant (HAP) emissions: 9 tons per year.

Compliance with these limits shall also make the requirements of 40 CFR Part 63 for major sources of HAP emissions, as incorporated by reference at 401 KAR 63:002, not applicable to this source.

PERIODIC MONITORING:

To preclude the applicability of 401 KAR 52:020, *Title V Permits*, the source-wide emissions are limited to 90 tons per year for Particulate matter (PM/PM_{10}), 9 tons per year for any single hazardous air pollutant (HAP), and 22.5 tons per year for combined HAPs. The permit requires the source to monitor and keep monthly records of processing rates, weight percent of HAPs, processing hours and emission rates of PM10, individual HAP, and combined HAP from the tote loading stations, Henschel mixers, the extruders, and material handling operations. The permit requires these records to be reported semiannually.

The permittee shall perform visual observations of the opacity of emissions once each calendar week from each stack while in operation. These records shall be maintained and all records shall be reported semiannually.

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.

PAST PERMIT HISTORY:

Rev #	Permit type	Log or Activity #	Complete Date	Issuance Date	Summary of Action
----	**Operation**	----	**05/21/97**	**08/11/97**	**State-Origin Permit S-97-057**
1	**Modification**	----	**01/04/99**	**01/20/99**	**State-Origin Permit Revision S-97-057 (Revision 1)**
----	**Initial Issuance**	**229**	**01/10/07**	**TBD**	**Initial Issuance, Conditional Major Permit F-07-004**